Pathology LAB 3
Repair & Hemodynamic Disorders

Dr. Hamzah AD.

Tissue repair
(Additional Pictures)

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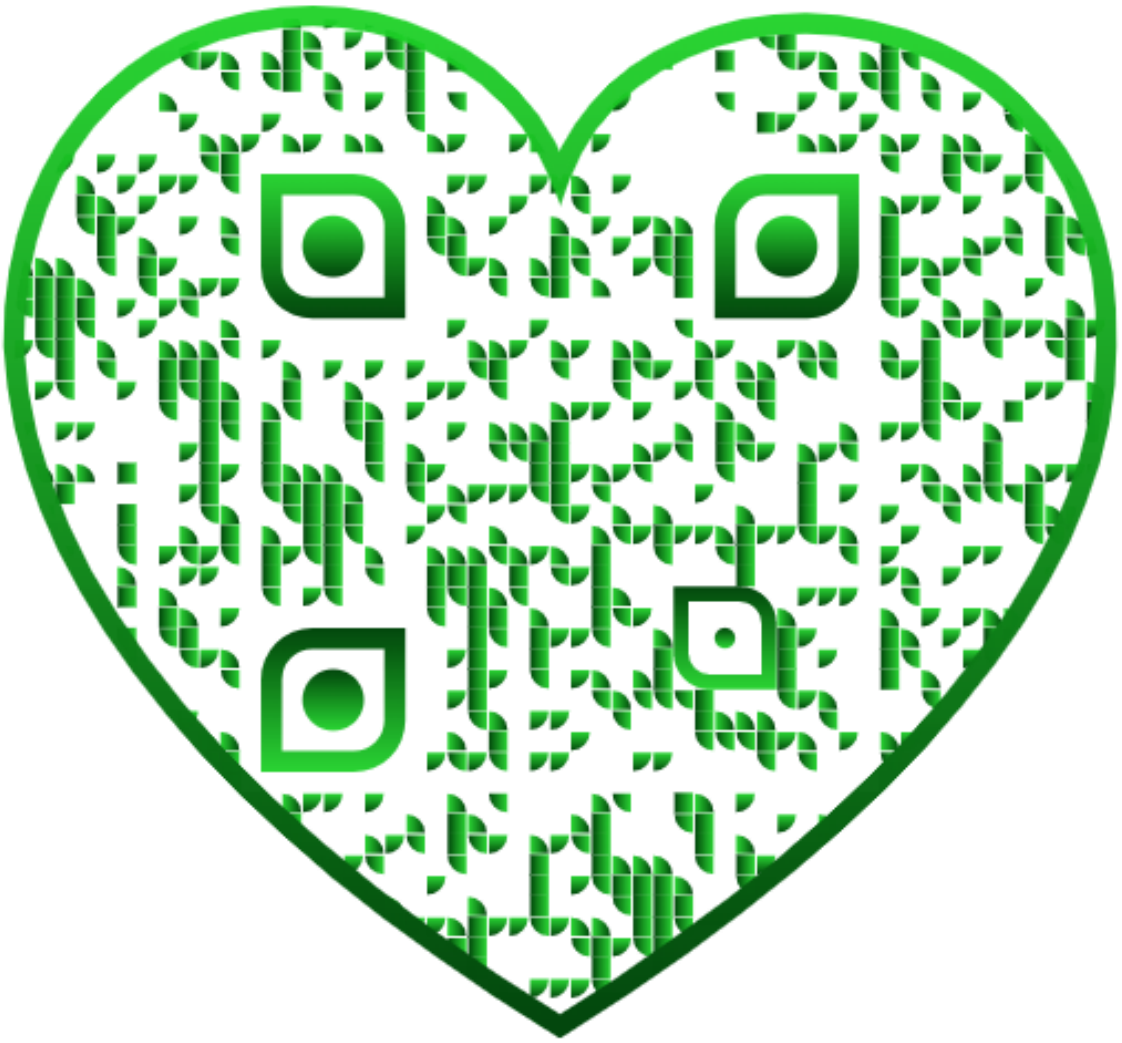
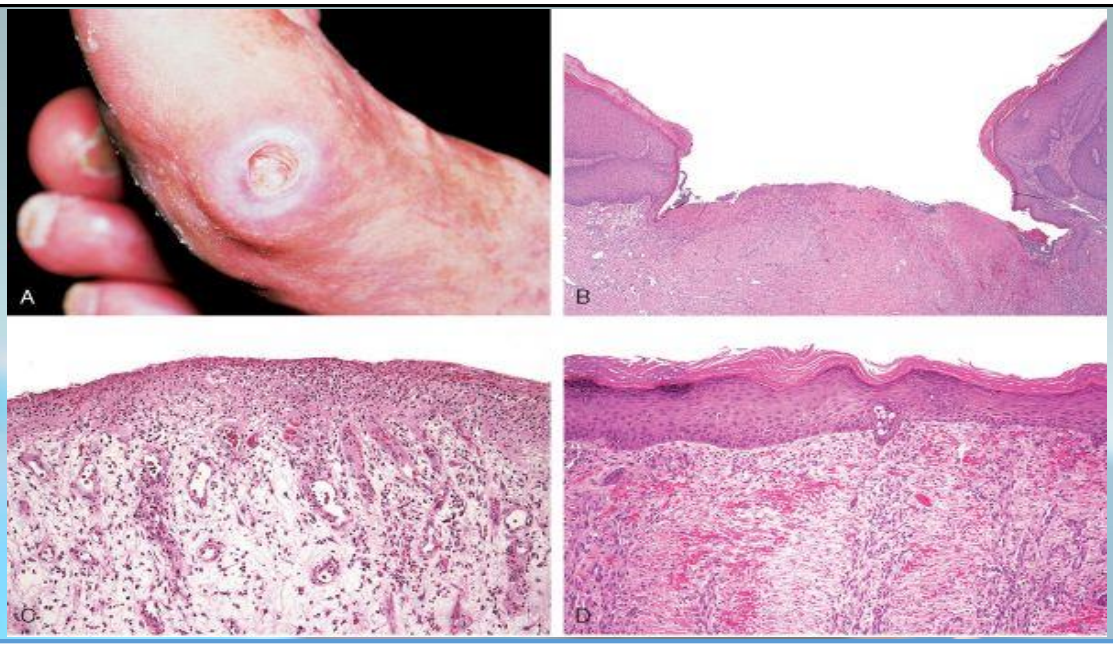
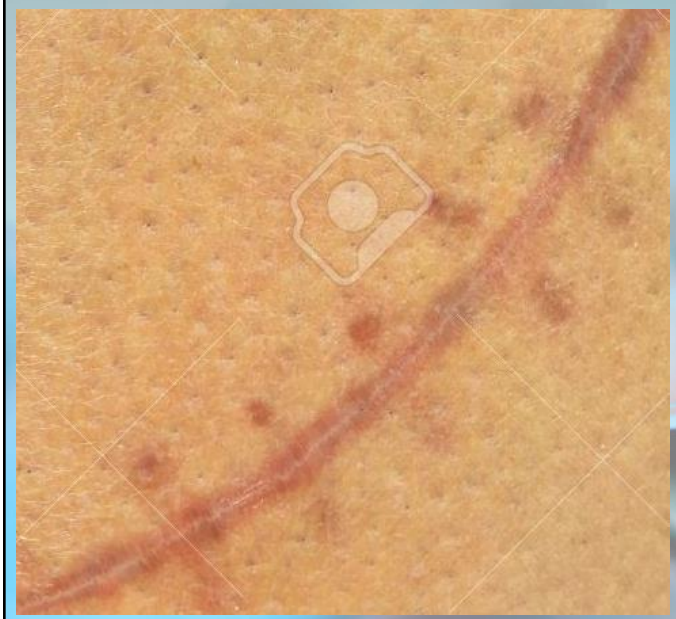




Skin ulcer; with necrotic tissue (A,B), granulation tissue (C), Fibrosis (D).

Scar formation (Gross wound healing)



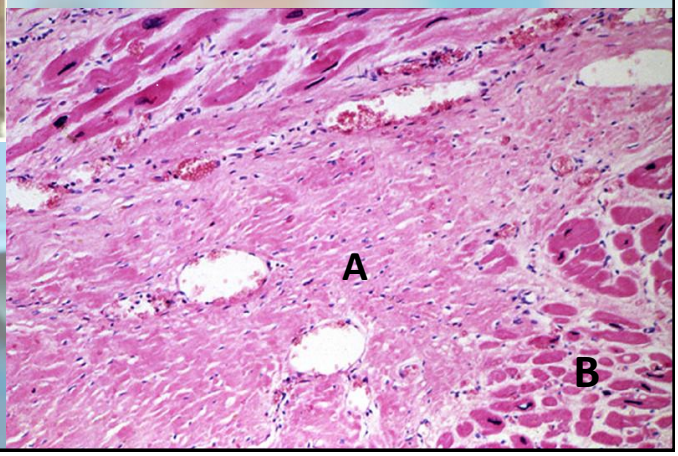
Characteristic Features:
lining of fibrous tissue
(due to collagen deposition)

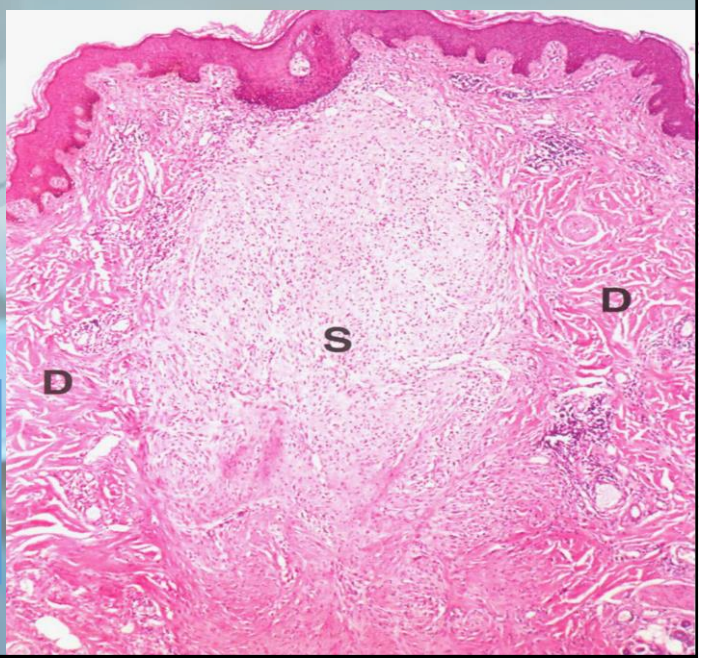
Scar formation after MI:

Characteristic Features:

A: Fibrous tissue

B: Cardiac muscle cell





Characteristic Features:
Grossly: Large Hypertrophic scar extending beyond the edge of the wound.
Microscopically: Excessive collagen bundle (pale in color)

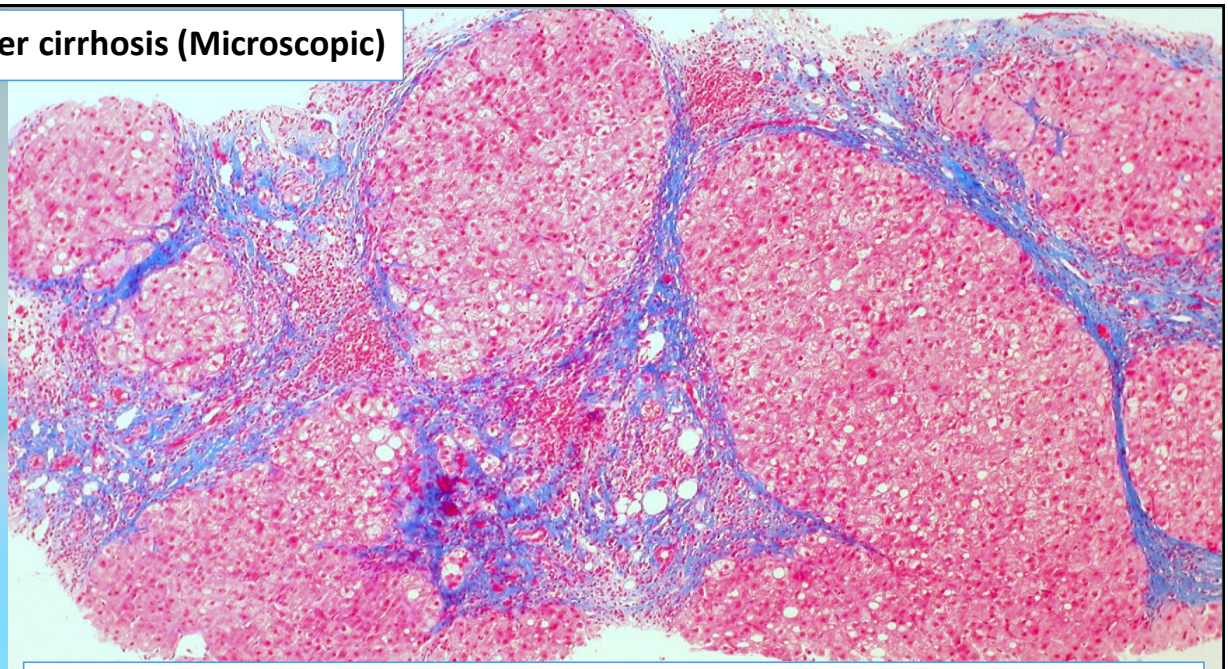
Contracture

Characteristic Features:
excessive fibrous tissue formation.

Liver cirrhosis

Presence of nodules (Micro or Macro)

Liver cirrhosis (Microscopic)



Fibrosis +regenerative nodule (loss of the normal architecture)

Hemodynamic Disorders

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EDEMA

• Edema results from the **movement of fluid from the vasculature into the interstitial spaces**; the fluid may be protein poor (transudate) or protein rich (exudate).

Edema may be caused by:

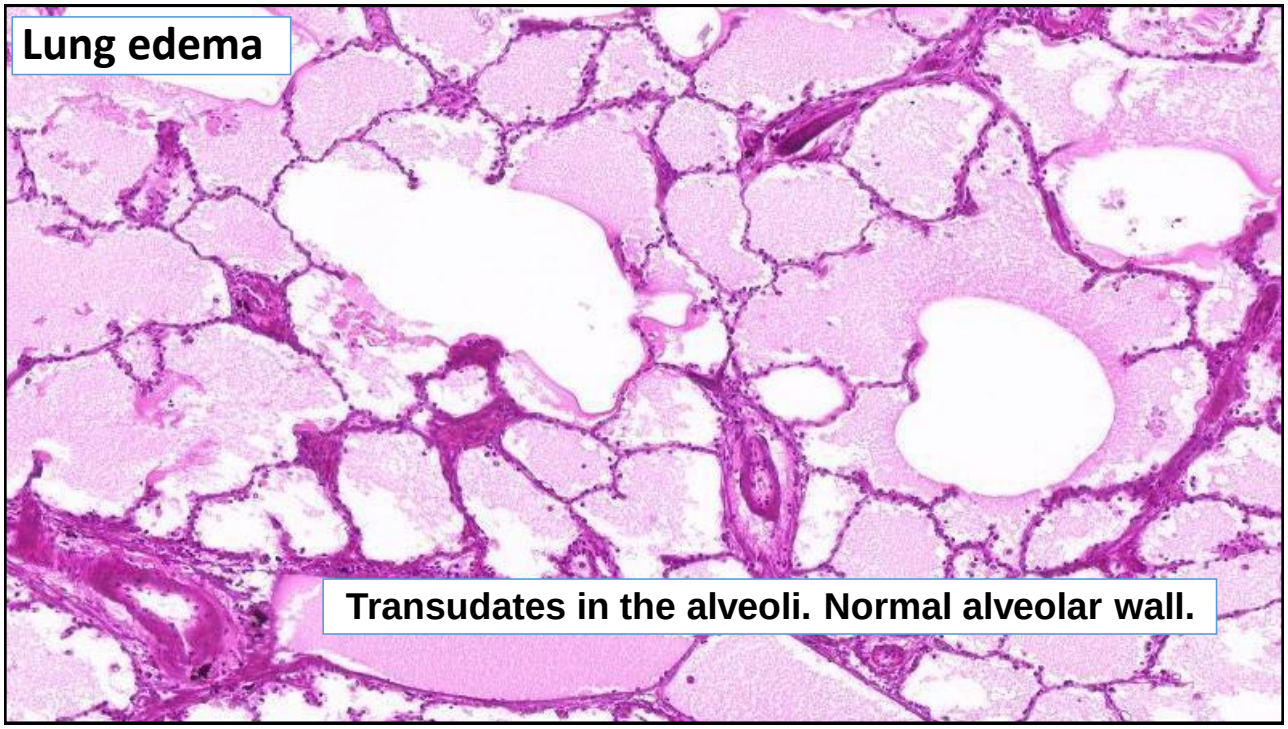
1. Increased hydrostatic pressure (e.g., heart failure).
2. Increased vascular permeability (e.g., inflammation).
3. Decreased colloid osmotic pressure resulting from **reduced plasma albumin**:
   - **Decreased synthesis** (e.g., liver disease, protein malnutrition).
   - **Increased loss** (e.g., nephrotic syndrome).
4. Lymphatic obstruction (e.g., inflammation or neoplasia).
5. Sodium retention (e.g., renal failure).

pitting edema

Characteristic Features:

pressed skin upon touching.

Lung edema



Transudates in the alveoli. Normal alveolar wall.

Hyperemia and Congestion

- **Hyperemia and congestion refer to:** an increase in blood volume within a tissue, but have different underlying mechanisms.
- **Hyperemia:** is an **active** process resulting from **arteriolar** dilation and increased blood inflow, as occurs at sites of inflammation or in exercising skeletal muscle.
- Hyperemic tissues are redder than normal because of engorgement with oxygenated blood.

- **Congestion:** is a **passive** process resulting from impaired outflow of **venous** blood from a tissue.
- Congested tissues have an abnormal blue-red color (cyanosis) from the accumulation of deoxygenated hemoglobin in the affected area.

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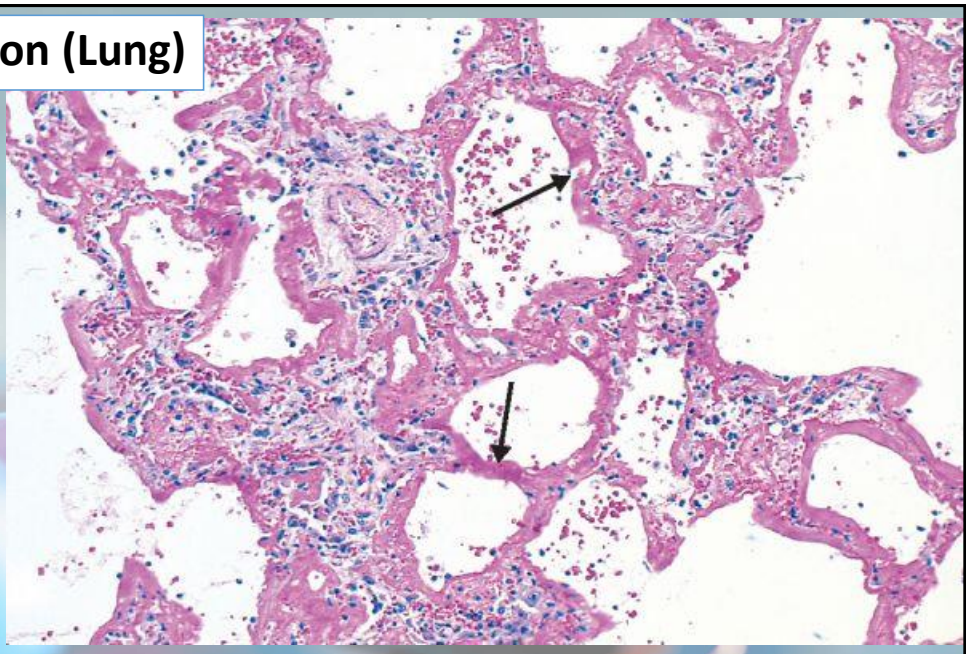
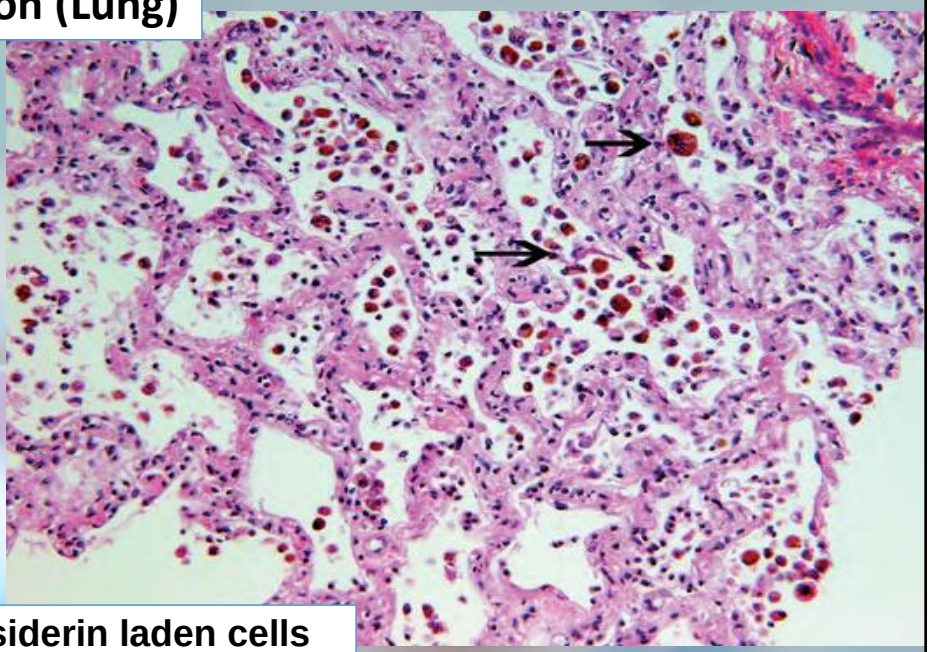
Acute congestion (Lung)

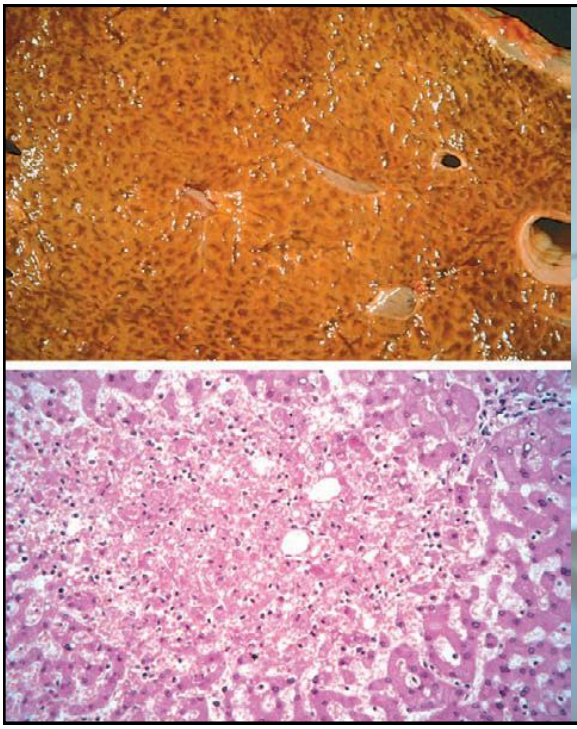


Presence of intact RBCs in alveolar cells with fresh hemorrhage

Chronic congestion (Lung)



presence of hemosiderin laden cells

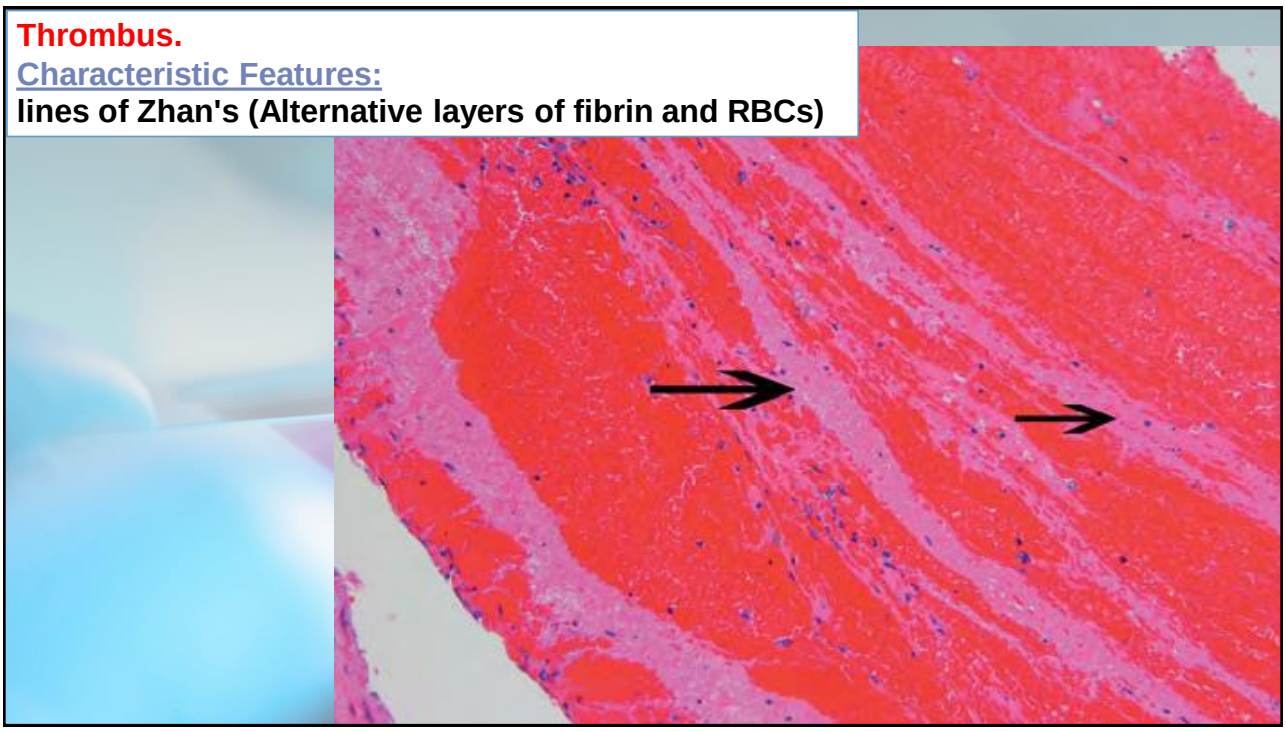


chronic passive congestion of liver.

Grossly: Alternative pale and dark areas

Microscopically: Pale areas are coagulative necrosis,
dark areas are normal viable tissue (many RBCs, and hepatocytes are atrophied)

Thrombus.
Characteristic Features:
lines of Zhan's (Alternative layers of fibrin and RBCs)

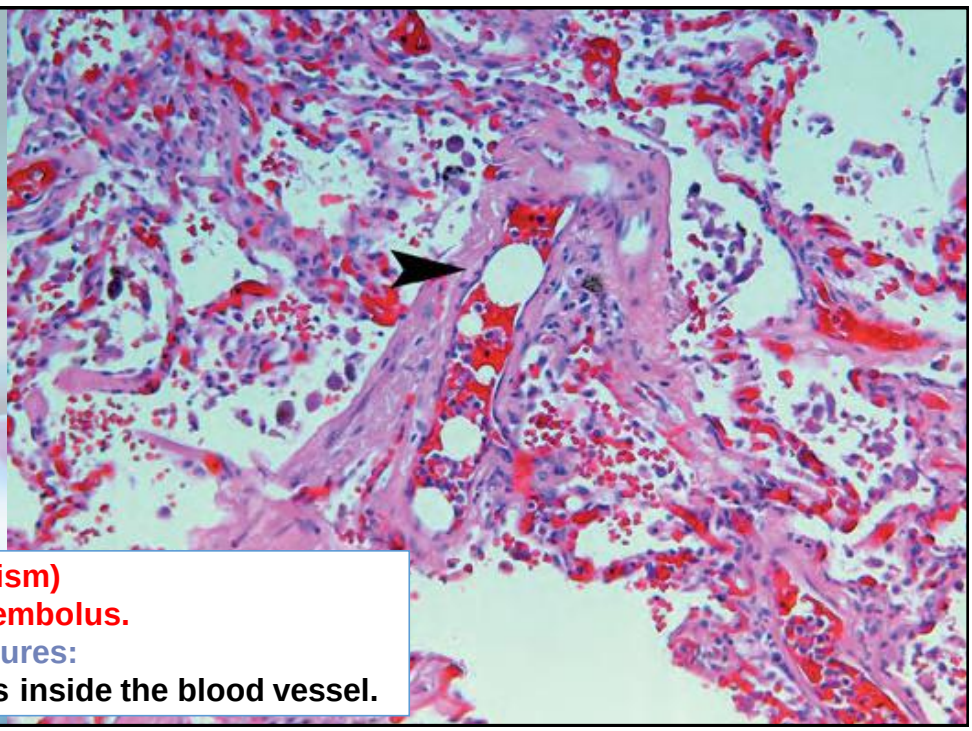


An embolus is a detached intravascular solid, liquid, or gaseous mass that is carried by the blood from its point of origin to a distant site, where it often causes tissue dysfunction or infarction.

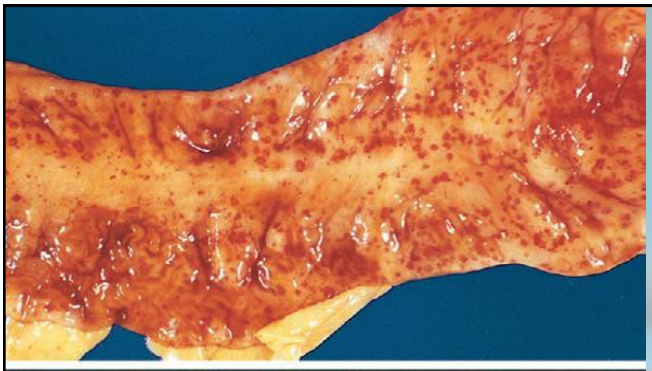
Massive pulmonary embolism

Large embolus inside the pulmonary artery

Fat embolism



(Pulmonary Embolism)
fat embolus or air embolus.
Characteristic Features:
globules or masses inside the blood vessel.



A. Punctate petechial hemorrhages of the colonic mucosa, a consequence of thrombocytopenia

B. Fatal intracerebral hemorrhage.

Thank you..

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